

INFORMATION EXCHANGE ANNEX (IEA) D-06-SN-0011  
SINGAPORE-UNITED STATES  
MASTER INFORMATION EXCHANGE AGREEMENT (MIEA)

CONCERNING

Weapons of Mass Destruction (WMD) Threat Reduction Technologies

In accordance with the MIEA between the Ministry of Defence of Singapore and the Department of Defense (DoD) of the United States of America, signed December 4, 1995, the following IEA is hereby established.

1. DESCRIPTION: This IEA provides for the exchange of research and development information ("R&D information") for the purposes of improving capabilities to counter global proliferation of WMD, enhancing military responsiveness for homeland defense, and facilitating the defeat of terrorism. It will promote improvement of capabilities to counter military and domestic WMD threats and support the global war on terrorism. Exchange of information will include approaches, techniques, technologies, testing, modeling and simulation, and assessment methodologies in the areas of nonproliferation, counterproliferation, and consequence management that will support combating WMD strategies.

a. The scope of the IEA comprises an exchange of R&D Information, including Government-developed or controlled R&D software, in the following areas:

(1) WMD Effects Modeling and Simulation:

- (a) Chemical, biological, and radiological (CBR) transport and dispersion;
- (b) Urban environments;
- (c) Internal flow within buildings;
- (d) Fire;
- (e) Smoke;
- (f) Evacuation;
- (g) Industrial hazards and toxic industrial chemicals and materials;  
and
- (h) Predictive propagation, such as for infectious disease.

- (2) Blast Effects, Testing of Structures, and Building and Infrastructure Protection Technologies:
  - (a) Characterization of explosion effects;
  - (b) Structural response and progressive collapse modeling and testing;
  - (c) Structural component testing; and
  - (d) Blast mitigation and protection technologies.
  
- (3) CBR and High-Yield Explosives Defense Science and Technology:
  - (a) CBR and explosive materials characterization and verification;
  - (b) Detection and sensor optimization;
  - (c) Individual and collective protection;
  - (d) Decontamination;
  - (e) Environmental fate of agents;
  - (f) Medical pretreatments, diagnostics, and therapeutics;
  - (g) Study of toxicology of agent exposure;
  - (h) Countermeasures for naturally occurring or genetically modified biological agents;
  - (i) Medical surveillance and epidemiology;
  - (j) CBR security and safeguards;
  - (k) CBR incidence management; and
  - (l) Emerging threats and special projects.
  
- (4) WMD Defense Technology Applications:
  - (a) Technologies and techniques to predict, detect, prevent, neutralize, and mitigate the effects of improvised explosive and CBR dispersion devices; and
  - (b) WMD materials detection, tracking, interdiction, and defeat.
  
- (5) Base, Seaport, and Domestic Protection:
  - (a) Sensor applications;

- (b) Unmanned vehicle and sensor integration;
  - (c) Critical infrastructure modeling, planning, and protection methods; and
  - (d) Physical security and safeguards.
- (6) Vulnerability Analyses Methods and Tools:
- (a) Infrastructure interdependence modeling;
  - (b) Mission degradation modeling; and
  - (c) Vulnerability assessment tools.
- (7) Operational and Strategic Studies:
- (a) Asymmetric threats modeling;
  - (b) Threat anticipation modeling; and
  - (c) Managing infectious disease outbreak.
- (8) Decision Support, Collaboration Technologies, and Experimentation:
- (a) Exercise and collaboration technology development;
  - (b) Web-based collaboration for WMD consequence mitigation and management; and
  - (c) Improved situational awareness, decision aids, and command and control technologies.

b. Exchange of R&D Information under this IEA shall be on a reciprocal, balanced basis such that the R&D Information exchanged between the Parties shall be of approximately equivalent value, quantitatively and qualitatively, in accordance with Article II (Objective and Scope) of the MIEA.

c. All R&D Information exchanges under this IEA shall conform with the provisions of the MIEA, including the prohibitions against exchange of weapon, sensor, or related system computer software; weapon, sensor, or related system computer software documentation; exchange of Production Information (as defined in the MIEA); and exchange or provision of defense articles or services, in accordance with Article II (Objective and Scope) of the MIEA.

d. Correspondence and requests for R&D Information shall be handled in accordance with Article IV (Channels of Communication and Visits) and Article IX (Security) of the MIEA.

e. In accordance with Article VI (Contractual Arrangements) of the MIEA, this IEA provides no authority for placing contracts.

f. R&D Information will not be used by the receiving Party for any purpose other than for the purpose for which it was furnished without the specific prior written consent of the furnishing Party, in accordance with Article VII (Disclosure and Use of R&D Information) of the MIEA. R&D Information exchanged under this Agreement will be used by the receiving Party's government employees and contractor support personnel solely for information and evaluation purposes by their defense establishments.

2. ANNEX AUTHORITIES, TECHNICAL PROJECT OFFICERS, LIAISON OFFICERS, AND ESTABLISHMENTS:

a. For Singapore:

(1) Annex Authority:

Director, Directorate of Research and Development  
Defence Science and Technology Agency  
71 Science Park Drive, #02-05  
Singapore 118253  
Republic of Singapore

(2) Technical Project Officer:

Division Manager (Human Sciences)  
Directorate of Research and Development  
Defence Science and Technology Agency  
71 Science Park Drive, #02-05  
Singapore 118253  
Republic of Singapore

(3) Liaison Officer:

Head Defence Technology Office  
Embassy of Singapore  
3501 International Place N.W.  
Washington DC 20008  
USA

(4) Establishments:

- (a) Directorate of Research and Development  
Defence Science and Technology Agency  
71 Science Park Drive, #02-05  
Singapore 118253  
Republic of Singapore
- (b) Building and Infrastructure Directorate  
Defence Science and Technology Agency  
1 Depot Road, #12-05, Defence Technology Tower A  
Singapore 109679  
Republic of Singapore
- (c) Chemical Biological Radiological Explosive (CBRE)  
Defence Group  
c/o Headquarters Singapore Combat Engineers  
Nee Soon Camp  
581 Transit Road  
Singapore 778908  
Republic of Singapore

b. For the United States:

(1) Annex Authority:

Defense Threat Reduction Agency  
8725 John J. Kingman Road  
MSC 6201  
Fort Belvoir, VA 22060-6201

(2) Technical Project Officer:

Defense Threat Reduction Agency  
Research and Development  
8725 John J. Kingman Road  
MSC 6201  
Fort Belvoir, VA 22060-6201

(3) Associate Technical Project Officer:

Air Force Nuclear Weapons and Counterproliferation Agency  
Advanced Technology Division  
1551 Wyoming Blvd SE  
Kirtland AFB, NM 87117-5617

(4) Establishments:

(a) Defense Threat Reduction Agency  
8725 John J. Kingman Road  
MSC 6201  
Fort Belvoir, VA 22060-6201

(b) Air Force Nuclear Weapons and Counterproliferation Agency  
Advanced Technology Division  
1551 Wyoming Blvd SE  
Kirtland AFB, NM 87117-5617

3. SECURITY AND INFORMATION CONTROL:

a. The highest classification of R&D Information that may be exchanged under this IEA is SECRET.

b. All R&D Information exchanges under this IEA will conform with the security and information control provisions of the MIEA, including Article VII (Disclosure and Use of R&D Information), Article VIII (Controlled Unclassified Information), Article IX (Security), and Article X (Third Party Transfers).

c. Annual R&D Information objectives may be specified, if appropriate. These objectives may be established through exchange of correspondence by the Technical Project Officers (TPOs) and will be revised annually by the TPOs to reflect current technology considerations.

4. SPECIAL DISCLOSURE AND USE OF INFORMATION PROVISIONS:

None.

5. FINANCIAL RESPONSIBILITIES:

Each Party shall be responsible for its own costs in implementation of this IEA in accordance with Article V (Financial Arrangements) of the MIEA.

6. TERMINATION AND DURATION OF THIS IEA ANNEX:

a. This IEA may be terminated at any time by the written consent of both Parties, who shall consult at the appropriate level prior to the date of termination to ensure termination on the most equitable terms. In the event a Party finds it necessary to terminate its participation in this IEA unilaterally, it may terminate this IEA upon 60 days written notification to the other Party. Termination of this IEA shall be subject to the provisions of Article XII (Amendment, Termination, Entry Into Force, and Duration) of the MIEA.

b. This IEA shall remain in effect for a period of five years from the date of the last signature unless amended or extended by mutual written consent. Before the expiration of this IEA, the Parties shall review the IEA and may, by mutual written consent, extend the IEA for additional periods of up to five years.

FOR THE DEPARTMENT OF DEFENSE  
OF THE UNITED STATES OF  
AMERICA:

  
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Signature

James A. Tegnalia

\_\_\_\_\_  
Name

Director,  
Defense Threat Reduction Agency

\_\_\_\_\_  
Title


21 March, 2006

\_\_\_\_\_  
Date

Singapore

\_\_\_\_\_  
Location

FOR THE MINISTRY OF DEFENCE  
OF SINGAPORE:

  
\_\_\_\_\_  
Signature

Lui Pao Chuen

\_\_\_\_\_  
Name

Chief Defence Scientist,  
Ministry of Defence

\_\_\_\_\_  
Title

21 March, 2006

\_\_\_\_\_  
Date

Singapore

\_\_\_\_\_  
Location

County/City of Fairfax  
Commonwealth of Virginia  
I certify this to be a complete, exact and true  
copy of the original document. Certified this  
10 day of April, 2006  
Patricia Allen Notary Public  
My commission expires July 31, 2006